



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,696	-06/13/2002	Dimitri Donskoy	7604/21/1	3736
27614	7590	11/03/2005	EXAMINER	
MCCARTER & ENGLISH, LLP FOUR GATEWAY CENTER 100 MULBERRY STREET NEWARK, NJ 07102			SAINT SURIN, JACQUES M	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/069,696	<b>Applicant(s)</b> DONSKOY ET AL.	
	<b>Examiner</b> Jacques M. Saint-Surin	<b>Art Unit</b> 2856	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22,24-33,35-40 and 43-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32,33,35-40,43, 47 and 54 is/are allowed.
- 6) ☒ Claim(s) 1-22,24-28,44-46 and 48-50 is/are rejected.
- 7) ☒ Claim(s) 9,10,19,20,30,31 and 51-53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/06/05 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 11, 21 and 48 are rejected under 35 U.S.C. 102(e) as being anticipated by Donskoy et al. (US Patent 6,415,666).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, discloses an electromagnetic wave vibrometer apparatus (detecting apparatus 10 of Fig. 7) comprising:

- a signal generator (signal generator 416 as shown in Fig. 7) for generating an electromagnetic signal (;

- a modulator (power amplifier 418) for amplitude modulating the electromagnetic signal to produce an amplitude modulated signal

- a transmitter (source 412) for transmitting the signal at a vibrating object (object 8), see: Fig. 7;

- a receiver (sensor 414) for receiving a reflected amplitude modulated signal from the vibrating object (8);

- a demodulator (demodulator 425) for demodulating the reflected amplitude modulated signal to produce a demodulated signal; and

- a signal processor (423) for analyzing the vibration waveform of the demodulated signal.

Regarding claim 11, it is similar in scope with claim 1 and therefore, it is rejected for the reasons set forth for that claim. Furthermore, Donskoy discloses the RF signal

Art Unit: 2856

can be a burst sinusoidal signal and may be synchronously admitted with a RF transmitter also suspended above the ground. Both the acoustic and the RF signals penetrate into the ground. The acoustic signal excites vibration of the buried mechanically compliant target. This vibration causes a phase or frequency modulation of the RF signal reflected from the vibrated target, see: col. 6, lines 60-66.

Regarding claim 21, it is similar in scope with claim 1. Therefore, it is rejected for the reasons set forth for that claim.

Regarding claim 48, it is similar in scope with claim 1. Therefore, it is rejected for the reasons set forth for that claim.

4. Claims 1, 11, 21 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Toshihiro (JP Patent 410200478A).

Regarding claim 48, Toshihiro discloses :

providing a non-coherent beam of light (light beam 58);

amplitude modulating (amplitude modulated 50) the non-coherent beam of light (58) with an amplitude modulating signal to produce an amplitude modulated beam of light (58);

transmitting (laser transmitter 42) the amplitude modulated beam of light (58) at a vibrating object (corner cube 48);

receiving a reflected amplitude modulated beam of light from the vibrating object(48) using a receiver (photoelectric transducer 44);

demodulating (demodulation circuit 46) the reflected amplitude modulated beam of light using the amplitude modulating signal to extract vibration information from the amplitude modulated signal.

Regarding claims 44-46, Donskoy discloses an RF generator which generates a radio frequency. It is known that a radio frequency is a group of electromagnetic energy whose wavelengths are between the audio and light range. Electromagnetic waves transmitted usually are between 500 KHz and 300GHz. Therefore, the amplitude modulated signal is inherently modulated in GHz range.

***Claim Rejections - 35 USC § 103***

5. Claims 2-6, 12-16, 22 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donskoy et al. (US Patent 6,415,666) in view of Sherman et al. (US Patent 6,591,124).

Regarding claims 2-6, 12-16, 22, 24-26, 33, 35-37 and 49-50, Donskoy discloses an RF signal generator 417. Donskoy further discloses the acoustic signal can be emitted by means of loudspeakers, air horns, or a seismic source or other means known in the art. In addition, Donskoy discloses the receiving sensor could be an accelerometer or a microphone or ultrasonic vibrometer (laser). However, Donskoy does not specifically disclose or suggest the electromagnetic signal is an optical signal, an microwave signal and a combination of optical and microwave signal wherein the optical and microwave signals are modulated at the same frequency. In the case of an electromagnetic signal, the wavelength used could be in the radio-frequency range, or it could be a much higher frequency so as to render the electromagnetic signal into an

Art Unit: 2856

optical signal or a microwave signal. In the case of an acoustic signal, its frequency could be in the ultrasonic range, so as to render it indiscernible to human ears, see: col. 21, lines 59-67. It would have been obvious to one having ordinary skill in the art at the time of the invention to be motivated to employ in Donskoy the techniques of Sherman as taught above because one of the ordinary skill in the art using the above combination would be motivated to recognize that the transmitter and receiver units would appropriately be optical, microwave, radio, magnetic, or acoustic in nature thereby, making the above combination more effective.

6. Claims 7-8, 17-18 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donskoy et al. (US Patent 6,415,666) in view of Cahill et al. (US Patent 4,755,051).

Regarding claims 7-8, 17-18 and 27-28, Donskoy does not disclose a laser signal source comprising a LED signal source. Cahill discloses a light source 30 which could be a light emitting diode inputs a light signal into an optical fiber 32 in direction of a beam splitter 34, see: col. 3, lines 3-6. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Donskoy the light source of Cahill because it would inputs a light beam towards the object to be vibrated in an efficient and well known manner.

***Allowable Subject Matter***

5. Claims 32-33, 35-40, 43, 47 and 54 are allowable over the prior art of record.

Art Unit: 2856

6. Claims 9-10, 19-20, 29-31 and 51-53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

6. Applicant's arguments filed Applicant's arguments with respect to claims 1-33 and 35-47 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

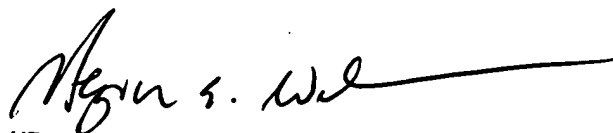
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M Saint-Surin whose telephone number is (571) 272-2206. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jacques M. Saint-Surin  
October 28, 2005



HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800